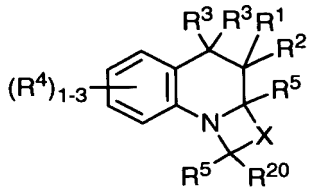
What is claimed is:

1. A compound of formula I, including enantiomeric, diastereomeric, or tautomeric isomers thereof, or any pharmaceutically acceptable salt thereof;



I

wherein,

R^1 is

(a) R^{12}

(b) $C(=O)R^6$, or

(c) CN;

R^2 is

(a) R^{12}

(b) $C(=O)R^7$,

(c) CN,

(d) $-CH_2-R^7$,

(e) $-NR^{17}R^7$,

(f) $-CH_2COR^7$,

(g) $-CH_2CH_2COR^7$;

Each R^3 is independently

(a) H,

(b) R^{12},

(c) Oxo,

(d) C_{1-7} alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},

(e) C_{3-8} cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},

(f) aryl optionally substituted by one or more R^8,

(g) heteroaryl optionally substituted by one or more R^8, or

(h) halo;

Each R^4 is independently

(a) H,

(b) halo,
(c) OR^{12},
(d) $OC(=O)NR^9R^{10}$,
(e) SR^{12},
(f) $S(O)_mR^{13}$,
(g) NR^9R^{10},
(h) $NR^9S(O)_mR^{13}$,
(i) $NR^9C(=O)OR^{13}$,
(j) phenyl optionally substituted by one or more R^8,
(k) heteroaryl optionally substituted by one or more R^8,
(l) cyano,
(m) nitro,
(n) $CONR^9R^{10}$,
(o) CO_2R^{12},
(p) $C(=O)R^{13}$,
(q) $C(=NOR^{12})R^{13}$,
(r) $S(O)_mNR^9R^{10}$,
(s) $NR^9C(=O)$-R^{12},
(t) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(u) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(v) N_3,
(w) het^1 optionally substituted by one or more R^8, or
(x) $C(O)O$-C_{1-4}alkyl-R^{12};

Each R^5 is independently,

(a) H,
(b) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(c) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(d) aryl optionally substituted by one or more R^8, or
(e) heteroaryl optionally substituted by one or more R^8;

R^6 and R^7 are independently;

(a) OR^{12},
(b) NR^9R^{10},
(c) R^{13}, or

(e) R^6 and R^7 together with the 2 carbons to which they are attached form cyclohexane-1,3-dione optionally substituted by one or more R^{13}, cyclopentane-1,3-dione optionally substituted by one or more R^{13}, R^6 and R^7 together form $-N(R^{17})-S(O)_m-N(R^{17})-$, $-N(R^{17})-C(O)-N(R^{17})-$, $-N(R^{17})-C(S)-N(R^{17})-$, $-N(R^{17})-N(R^{17})-$, $-N(R^{17})-C(O)-$, or $-N(R^{17})-$, or R^6 and R^7 together form a phenyl ring;

R^8 is

(a) H,
(b) halo,
(c) OR^{12},
(d) OCF_3,
(e) SR^{12},
(f) $S(O)_mR^{13}$,
(g) NR^9R^{10},
(h) $NR^9S(O)_mR^{13}$,
(i) $NR^9C(=O)OR^{13}$,
(j) phenyl optionally substituted by halo, cyano, C_{1-7}alkyl, or C_{1-7}alkoxy, in the alkyl portion of the C_{1-7}alkyl and C_{1-7}alkoxy is optionally substituted by one or more R^{11};
(k) heteroaryl optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy,
(l) cyano,
(m) nitro,
(n) $CONR^9R^{10}$,
(o) CO_2R^{12},
(p) $C(=O)R^{13}$,
(q) $C(=NOR^{12})R^{13}$,
(r) $S(O)_mNR^9R^{10}$,
(s) $NR^9C(=O)-R^{12}$,
(t) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(u) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},
(v) -C(O)H, or
(w) $-het^1$;

R^9 and R^{10} are independently

(a) H,
(b) OR^{12},
(c) aryl optionally substituted by one or more R^{14},

(d) heteroaryl optionally substituted by one or more R^{14},

(e) C_{1-7}alkyl which is optionally substituted by one or more R^{11},

(f) C_{3-8}cycloalkyl which is optionally substituted by one or more R^{11},

(g) $(C=O)R^{13}$, or

(h) R^9 and R^{10} together with the nitrogen to which they are attached form morpholine, pyrrolidine, piperidine, thiazine, piperazine, each of the morpholine, pyrrolidine, piperidine, thiazine, piperazine being optionally substituted with R^{11};

R^{11} is

(a) oxo,

(b) phenyl optionally substituted by one or more R^{14},

(c) OR^{12},

(d) SR^{12},

(e) $NR^{12}R^{12}$,

(f) halo,

(g) CO_2R^{12},

(h) $CONR^{12}R^{12}$,

(i) C_{1-7}alkyl which is optionally substituted oxo, halo, OR^{12}, SR^{12}, C_{1-7}alkyl, or $NR^{12}R^{12}$ substituents, or

(j) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more oxo, halo, OR^{12}, SR^{12}, C_{1-7}alkyl, or $NR^{12}R^{12}$ substituents;

R^{12} is

(a) H,

(b) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by oxo, halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents,

(c) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more oxo, halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents,

(d) aryl optionally substituted by one or more halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents, or

(e) heteroaryl optionally substituted by one or more halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents;

R^{13} is

(a) C_{1-7} alkyl which is optionally substituted by one or more by oxo, halo, carboxyl, C_{1-7}alkyl, or C_{1-7}alkoxy substituents,

(b) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more by oxo, halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents,

(c) aryl optionally substituted by one or more halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents;

(d) heteroaryl optionally substituted by one or more halo, C_{1-7}alkyl, or C_{1-7}alkoxy substituents,

(e) -C(O)OH

R^{14} is

(a) H,

(b) halo,

(c) C_{1-7}alkyl,

(d) OR^{12},

(e) OCF_3,

(f) SR^{12},

(g) $S(O)_mR^{13}$,

(h) $NR^{12}R^{12}$,

(i) $NR^{12}S(O)_mR^{13}$,

(j) $NR^{12}C(=O)OR^{13}$,

(k) phenyl optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy,

(l) heteroaryl optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy,

(m) cyano,

(n) nitro,

(o) $CONR^{12}R^{12}$,

(p) CO_2R^{12},

(q) $C(=O)R^{13}$,

(r) $C(=NOR^{12})R^{13}$,

(s) $S(O)_mNR^{12}R^{12}$,

(t) $NR^9C(=O)$-R^{12},

(u) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by oxo, halo, OR^{12}, SR^{12}, C_{1-7}alkyl, or $NR^{12}R^{12}$ substituents, or

(v) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by oxo, halo, OR^{12}, SR^{12}, C_{1-7}alkyl, or $NR^{12}R^{12}$ substituents;

X is

(a) $-(C(R^{15})_2)_n-$,

(b) $-(C(R^{15})_2)_m$-O-$(C(R^{15})_2)_k$ -,

(c) $-(C(R^{15})_2)_m-S(O)_m-(C(R^{15})_2)_k-$, or

(d) $-(C(R^{15})_2)_m-NR^{16}-(C(R^{15})_2)_k-$;

Each R^{15} is independently

(a) H,

(b) OR^{11},

(c) Oxo,

(d) C_{1-7} alkyl which is optionally substituted by one or more by one or more R^{11} substituents,

(e) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more by one or more R^{11} substituents,

(f) aryl optionally substituted by one or more R^8, or

(g) heteroaryl optionally substituted by one or more R^8;

R^{16} is

(a) H

(b) OR^{12},

(c) $(C=O)R^{13}$,

(d) $(C=O)OR^{13}$,

(e) $(C=O)NR^9R^{10}$,

(f) $S(O)_mR^{13}$,

(g) $S(O)_mNR^9R^{10}$,

(h) C_{1-7} alkyl which is optionally substituted by one or more R^{11} substituents,

(i) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11} substituents,

(j) aryl optionally substituted by one or more R^8, or

(k) heteroaryl optionally substituted by one or more R^8;

R^{17} is

(a) H,

(b) -OH, and

(c) C_{1-4}alkyl;

R^{19} is

(a) H,

(b) OR^{11},

(c) Oxo,

(d) C_{1-7} alkyl which is optionally substituted by one or more by one or more R^{11} substituents,

(e) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more by one or more R^{11} substituents,

(f) aryl optionally substituted by one or more R^8, or

(g) heteroaryl optionally substituted by one or more R^8;

R^{20} is

(a) H,

(b) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},

(c) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11},

(d) aryl optionally substituted by one or more R^8,

(e) heteroaryl optionally substituted by one or more R^8, or

(f) R^{20} and R^{19}, taken together, form–CH_2–;

wherein, "aryl" denotes a phenyl radical or an ortho-fused bicyclic carbocyclic radical having about nine to ten ring atoms in which at least one ring is aromatic;

wherein, "heteroaryl" encompasses a radical attached via a ring carbon or ring nitrogen of a monocyclic aromatic ring containing five or six ring atoms consisting of carbon and 1, 2, 3, or 4 heteroatoms, selected from oxygen (-O-), sulfur (-S-), oxygenated sulfur such as sulfinyl (S=O) and sulfonyl ($S(=O)_2$), or nitrogen N(Z) wherein Z is absent or is H, O, C_{1-4}alkyl, phenyl or benzyl, or a radical of an ortho-fused bicyclic heterocycle of about eight to ten ring atoms derived therefrom;

het^1 is a C- or N- linked five- (5), six- (6), seven- (7), or eight- (8) membered mono- or bicyclic ring, each mono- or bicyclic ring being fully saturated or partially unsaturated, and having 1-4 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen; het^1 being optionally substituted by 1-2 substituents selected from C_1-C_4alkyl, amino, C_1-C_4alkylamino, C_1-C_4alkyloxy, halogen –CN, =O, =S;

each k is independently 0, 1, or 2;

each m is independently 0, 1, or 2;

each n is independently 1, 2, or 3; and

provided that

when each R_4 is H, that R_1 and R_2 are not simultaneously H, CN, or –C(O)-OCH_3 or that R_1 is not CN and R_2 is not –C(O)-OC_{1-4}alkyl;

when the compound is 1,2,4,4a-Tetrahydro-cis-2,4-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione that the compound is enantiomerically enriched (-) form of (2R,4S,4aS)-2,4-

dimethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione; and

the compound is not 2,3,4,4a-tetrahydro-1',3'-dimethylspiro[1H 1-methyl pyrazino[1,2-a]quinoline-5(6H),5'(2'H)-pyrimidine]-2'4'6'(1'H, 3'H)-trione.

2. The compound of claim 1, wherein each R^4 is independently

(a) H,
(b) halo,
(e) SR^{12},
(f) $S(O)_mR^{13}$,
(g) NR^9R^{10},
(h) $NR^9S(O)_mR^{13}$,
(i) $NR^9C(=O)OR^{13}$,
(j) phenyl optionally substituted by one or more R^8,
(k) heteroaryl optionally substituted by one or more R^8,
(l) cyano,
(m) nitro,
(n) $CONR^9R^{10}$,
(o) CO_2R^{12},
(p) $C(=O)R^{13}$,
(q) $C(=NOR^{12})R^{13}$,
(s) $NR^9C(=O)$-R^{12},
(t) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more R^{11}, or
(u) het^1 optionally substituted by one or more R^8.

3. The compound of claim 2, wherein each R^4 is independently selected from NO_2, H, Br, F, CF_3, CN, NH_2, -C(O)-OCH_3, -S-CH_3, -$S(O)_2$-CH_3, -$N(OCH_3)$-CH_3, -NH-C(O)-O-tbutyl, -NH-C(O)-CH_3, heteroaryl optionally substituted by one or more R^8, het^1 optionally substituted by one or more R^8, -$S(O)_2$-CH_3, or phenyl optionally substituted by one or more of NO_2, Cl, F, -OCH_3, and -OCF_3.

4. The compound of claim 1, wherein each R^3 is H.

5. The compound of claim 1, wherein R^1 is $-C(O)R^6$.

6. The compound of claim 1, wherein R^2 is $-C(O)R^7$.

7. The compound of claim 6, wherein R^1 is $-C(O)R^6$

8. The compound of claim 7, wherein R^6 and R^7 form $-N(R^{17})-C(O)-N(R^{17})-$ or $-N(R^{17})-C(S)-N(R^{17})-$.

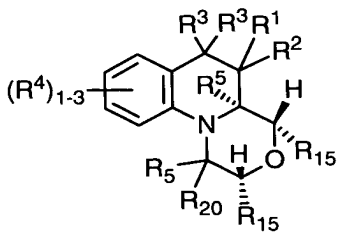
9. The compound of claim 1, wherein X is $-(C(R^{15})_2)_m-O-(C(R^{15})_2)_k-$ or $-(C(R^{15})_2)_m-NR^{16}-(C(R^{15})_2)_k-$.

10. The compound of claim 9, wherein X is $-C(R^{15})_2-O-C(R^{15})_2-$ or $-C(R^{15})_2-NR^{16}-C(R^{15})_2-$.

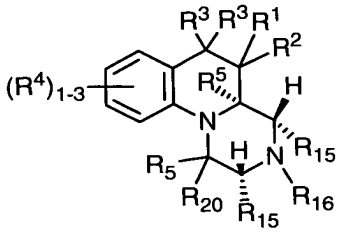
11. The compound of claim 10, wherein each R^{15} is independently H, C_{1-7} alkyl optionally substituted by one or more R^{11} substituents.

12. The compound of claim 11, wherein X is $-C(H)(C_{1-4}\text{ alkyl})-O-C(H)(C_{1-4}\text{ alkyl})-$ or $-C(H)(C_{1-4}\text{ alkyl})-NR^{16}-C(H)(C_{1-4}\text{ alkyl})-$.

13. The compound of claim 10, wherein the compound has the formula of

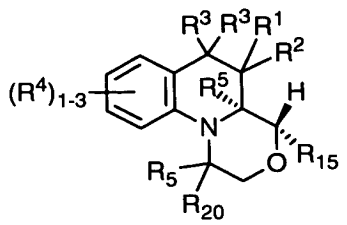


or

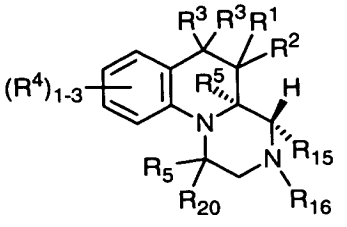


and each R_{15} is independently (b), (c), (d), (e), (f), or (g)

14. The compound of claim 10, wherein the compound has the formula of



or



and each R_{15} is independently (b), (c), (d), (e), (f), or (g).

15. The compound of claim 10, wherein R^{16} is $(C=O)OR^{13}$ or C_{1-7} alkyl.

16. The compound of claim 1, wherein each R^5 is independently H or C_{1-7}alkyl.

17. A compound selected from

(2R,4S,4aS)-2,4-dimethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

1,2,4,4a-Tetrahydro- 2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

8-Bromo-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

8-Fluoro-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-trifluoromethylspiro[[1,4]oxazino]4,3-a] quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

1,1',2, 3'4,4',4a, 6'-Octrahydro-2,4',6'-trioxospiro[[1,4]oxazino[4,3-*a*] quinoline-5(6*H*), 5' (2' *H*)-pyrimidine]-8-carbonitrile;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-carboxamidespiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

1,2,4,4a-Tetrahydro-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

8-Bromo-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]piperazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

1,2,4,4a-Tetrahydro-1,4a-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-2',4',6' (1' H,3' H)-trione;

8-Bromo-1,2,4,4a-tetrahydro-cis-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2' H)-pyrimidine]-4'-thioxo-2',6' (1' H,3' H)-dione;

8-Bromo-1,2,4,4a-tetrahydro-cis-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6H), 5' (2'*H*)pyrimidine]-2',4',6' (1' methyl, 3' methyl)-trione;

N-[1,1',2,3',4,4',4a,6'-Octahydro-2,4-dimethyl-2',4',6'-trioxospiro[[1,4]oxazino[4,3-a]quinolone-5(6*H*),5'(2'*H*)-pyrimidin]-8-yl]acetamide;

tert-butyl 1,1',2, 3',4,4',4a,6'-Octahydro-2,4-dimethyl-2',4',6'-trioxospiro[[1,4]oxazino[4,3-a]quinolone-5(6*H*),5'(2'*H*)-pyrimidin]-8-ylcarbamate;

8-Amino-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinolone-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione monohydrochloride;

9-Bromo-1,2,4,4a-tetrahydro-2,4-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*), 5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

8-Acetyl-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2*H*)-pyrimidine)-2',4',6' (1'*H*,3'*H*)-trione;

8-Ethanone-O-methyloxime-l-1,2,4,4a-tetrahydro-2,4-dimethylspiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2*H*)-pyrimidine)-2',4',6' (1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-(methylsulfonyl)spiro[[1,4]oxazino [4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-(methylsulfinyl)spiro[[1,4]oxazino [4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-(methylthio)spiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-9-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*methyl*,3'*methyl*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*, 3'*methyl*)-trione;

1,2, 4,4a-Tetrahydro-4-methyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2-methyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*s*)-trione;

2,3,4,4a-Tetrahydro-1',3,3'-trimethylspiro[1*H*-pyrazino[1,2-*a*]quinolinie-5(6*H*),5'(2'*H*)-pyrimidine]-2'4',6'(1'*H*,3'*H*)-trione;

2,3,4,4a-Tetrahydro-3-methylspiro[1*H*-pyrazino[1,2-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4'6'(1'*H*,3,*H*)-trione;

1,1-Dimethylethyl 1,1'2,3',4',4a,6'-octahydro-8-nitro-2',4',6'-trioxospiro[3*H*-pyrazino[1,2-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-3-carboxylate;

1,1-Dimethylethyl-8-cyano-1,1',2,3',4,4',4a,6'-octahydro-2',4',6'-trioxospiro[3*H*-pyrazino[1,2-a]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-3-carboxylate;

1,1',2'3'4'4'a-Hexahydro-2',4'-dimethyl-1,3-dioxospiro[2*H*-indene-2,5'(6'*H*)-[1,4]oxazino[4,3-*a*]quinoline]-8'-carbonitrile;

1,2,4,4a-Tetrahydro-2,4-dimethyl[1,4]oxazino[4,3-*a*]quinoline-5,5,8(6*H*)-tricarbonitrile;

8-Bromo-1,2,4-4a-tetrhydro-2,4-dimethyl[1,4]oxazino[4,3-*a*]quinoline-5,5(6*H*)-dicarbonitrile;

2,3,4,4a-Tetrhydro-3-methyl-8-nitro-2'-thioxospiro[1*H*-pyrazino[1,2-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-4',6'(1'*H*,3'*H*)-dione*)*;

9-(4-Chlorophenyl)-1,2,4,4a-tetryhydro-2,4-dimethylspiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrhydro-2,4-dimethyl-9-[4-(trifluoromethyoxy)phenyl]spiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)pyrimidine]-2'4'6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-9-(methoxyphenyl)-2,4-dimethylspiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H)*-trione;

9-(3-Chloro-4-fluorophenyl)-1,2,4,4a,-tetrahydro-2,4-dimethylsprio[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H)*-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-9-(3-nitrophenyl)spiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)trione;

1,1',2,3',4,4',4a,6'-Octahydro-2-4-dimethyl-2',4',6'-trioxospiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5(2'*H*)-pyrimidin]-9-yl]benzonitrile;

1,2,4,4a-Tetrahydro-2,4-dimethyl-9-[4-(methylsulfonyl)phenyl]spiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-9-(4-pyridinyl)spiro[[1,4]oxazino[4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(‘*H*,3'*H*)-trione;

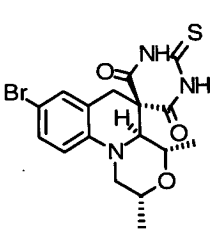
Methyl-1,1'-2,3',4,4a,6'-Octahydro-2,4-dimethyl-2',4',6'-trioxospiro[[1,4]oxazino [4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-9-carboxylate;

Methyl-1,1'-2,3',4,4a,6'-Octahydro-2,4-dimethyl-2',4',6'-trioxospiro[[1,4]oxazino [4,3-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-8-carboxylate;

1,2,3,3',4,4',4a,6'-Octahydro-2',4',6'-trioxospiro[1*H*-pyrazino[1,2-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine-8-carbonitrile monohydrochloride; and

2,3,4,4a-Tetrahydro-8-nitrospiro[1*H*-pyrazino[1,2-*a*]quinoline-5(6*H*),5'(2'*H*)-pyrimidine]-2',4',6'(1'*H*,3'*H*)-trione monohydrochloride.

18. A compound selected from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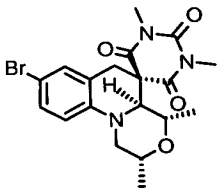
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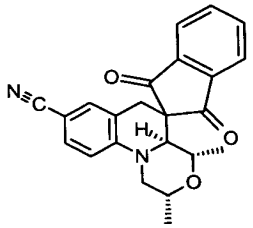
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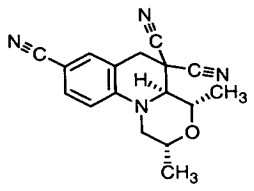
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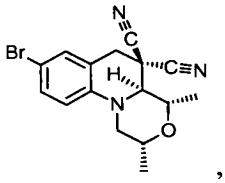
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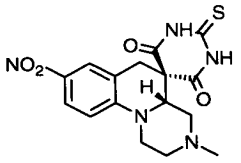
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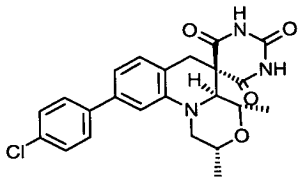
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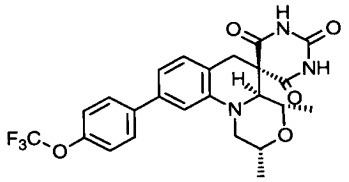
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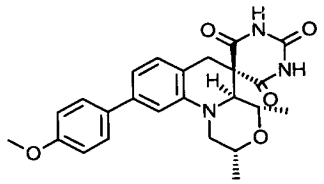
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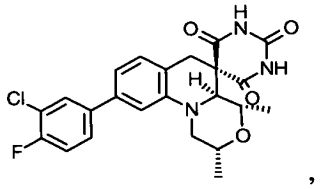
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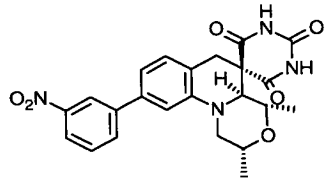
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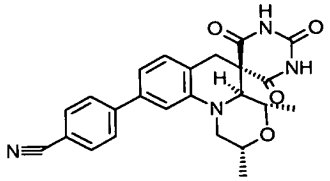
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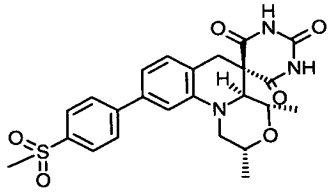
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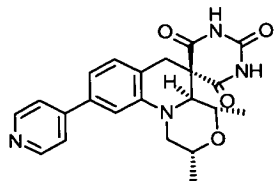
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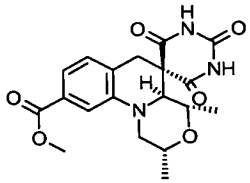
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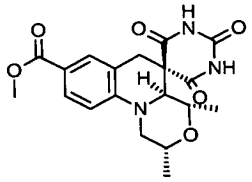
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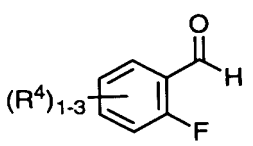
19. A method of synthesizing compounds of formula I, comprising reacting an amine of the formula III with a fluoroaldehyde of the formula II in a polar, aprotic solvent, followed by methylenation with a compound of the formula IV, and thermal rearrangement in a polar, protic solvent, an aprotic solvent, or a nonpolar solvent system including $ZnCl_2$.



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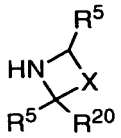

III

IV

wherein, X, R^1, R^2, R^3, R^4, R^5, and R^{20} are as defined above.

20. A method for the treatment of microbial infections in mammals comprising administration of an effective amount of compound of claim 1 to said mammal.

21. The method of claim 20 wherein said compound of claim 1 is administered to the mammal orally, parenterally, transdermally, or topically in a pharmaceutical composition.

22. The method of claim 20 wherein said compound is administered in an amount of from about 0.1 to about 100 mg/kg of body weight/day.

23. The method of claim 20 wherein said compound is administered in an amount of from about 1 to about 50 mg/kg of body weight/day.

24. A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

25. A pharmaceutical composition comprising one or more compounds of claim 1.

26. The composition of claim 25 wherein the composition comprises an enantiomerically enriched form of a compound of formula I.

27. The composition of claim 26, wherein the composition comprises at least 50% of one enantiomer of a compound of formula I relative to the other enantiomer of the compound.

28. The compositions of claim 27, wherein the composition comprises at least 80% of one enantiomer of a compound of formula I relative to the other enantiomer of the compound.

29. The compositions of claim 27, wherein the composition comprises at least 90% of one enantiomer of a compound of formula I relative to the other enantiomer of the compound.

30. A compound selected from

(2S,4R,4aR)-4-isopropyl-2-methyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-diethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-dimethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-8-acetyl-9,10-difluoro-2,4-dimethyl-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-10-fluoro-2,4-dimethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-dimethyl-8-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

1,2,4,4a-Tetrahydro-2,4-dimethyl-8-nitrospiro[[1,4]oxazino[4,3-a]quinoline-5(6H),5'(2'H)-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2S,4R,4aR)-2-isopropyl-4-methyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2S,4R,4aR)-2-isopropyl-4-methyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-diisopropyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-dimethyl-8-(3-methyl-1,2,4-oxadiazol-5-yl)-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2S,4R,4aR)-8-acetyl-10-fluoro-2,4-dimethyl-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2'R,4'S,4a'S)-2',4'-dimethyl-8'-nitro-1',2',4',4a'-tetrahydro-2H,6'H-spiro[pyrimidine-5,5'-[1,4]thiazino[4,3-a]quinoline]-2,4,6(1H,3H)-trione;

8-bromo-2,4-dimethyl-10-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2R,4S,4aS)-2,4-dimethyl-8-(5-methyl-1,2,4-oxadiazol-3-yl)-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

(2S,4S,4aS)-4-methyl-8-nitro-2-(trifluoromethyl)-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione;

4-azido-3-iodobenzyl (2R,4S,4aS)-2,4-dimethyl-2',4',6'-trioxo-1,1',2,3',4,4',4a,6'-octahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-8-carboxylate;

or

(2S,4S,4aS)-2,4-dimethyl-8-nitro-1,2,4,4a-tetrahydro-2'H,6H-spiro[1,4-oxazino[4,3-a]quinoline-5,5'-pyrimidine]-2',4',6'(1'H,3'H)-trione.